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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/865,256	05/25/2001	Casimer M. DeCusatis	FIS920010069US1 (14401)	3977

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EXAMINER

NGUYEN, TUAN M

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 11/15/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/865,256

Applicant(s)

DECUSATIS ET AL.

Examiner

Tuan M Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Paul IP

PAUL IP

SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2+3. 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding to claims 1, 18, 30 and 38, the claims recite “mechanism” and “device” more than one time in the claims. It is not clear as whether the mechanisms and devices recited in the claims are identical or the mechanisms and devices recited in the claims are different. The claims fail to identify a first mechanism/device with a second mechanism/device as recited in the claims. Furthermore, the claim fail to recite any structural relationship of the mechanisms/devices in the claims, the mechanisms/devices has not been given patentable weight because it is narrative in form. In order to be given patentable weight, a functional recitation must be expressed as a “mean” for performing the specified function, as set forth 35 USC 112, 6th paragraph and must be support by recitation in the claims of sufficient structure to warrant the presence of the functional language. *In re Fuller*, 1929 C.D. 172;388 O.G. 279. Also, it is unclear the mechanism meant which render the claims confusing, vague and indefinite.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 5-9, 11-30, 32-38, 40 and 42-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuo et al (6,222,861).

With respect to claim 1, Kuo discloses method and apparatus for controlling the wavelength of a laser comprising a laser transmitter (100), a laser (112), a modulator (114), an optical filter (120), an optical detector (122) and wavelength control circuit (130) includes a dither signal generator (218) a wavelength conversion element (222) a loop filter(216), the ADC/DAC converters (214, 224) the AMP (212), the modulate optical signal and frequency response spectrum (310, 312) and error signal (410), note col. 1 line 46 to col. 8 line 7, see figs. 1-4.

With respect to claim 2, Kuo discloses the frequency selected from the group consisting of radio, microwave, optical frequency, note col. 4 line 14 to col. 6 line 24.

With respect to claim 3, Kuo discloses a laser (112), the error signal (410) from optical detector (122), a center spectrum (310) from modulated signal from modulator (114) and frequency response (312) from optical filter (120), note col. 5, see figs. 1-4.

With respect to claims 5-6, 20, 23-24 and 32, Kuo discloses an optical filter (120) can be comb filter, such as a Fabry-Perot filter, an interference filter, or other filters. An optical filter

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(120) can also be a wavelength selector, such as a Bragg grating member, an array waveguide or any other device that provides bandpass filtering of the optical signal, note col. 8, see fig. 1.

With respect to claim 7, Kuo discloses the dither signal is generated by dither signal generator (218) and can be sinusoidal, triangular, saw tooth or other signal types, note col. 6, see fig 2.

With respect to claims 8-9, Kuo discloses an optical signal detector (122) and the conversion element (222), see fig 1-2.

With respect to claim 11, Kuo discloses a mixer (220) capable of combining the converted feedback signal with dither modulation signal and generating a cross product signal having components representing a sum and difference at dither frequencies, note col. 4, see fig 2.

With respect to claim 12, Kuo discloses an optical filter (120) can be a comb filter, an interference filter or other filters and the error signal (410) is positive or negative depending on whether a center wavelength of said electromagnetic signal is respectively less than or greater than said desired wavelength of said wavelength selective device, note col. 8, see fig 1-4.

With respect to claims 13, 36 and 43, Kuo discloses the wavelength shift device for receiving the error signal and varying the error signal in an amount to offset the electromagnetic signal center wavelength in a predetermined manner, note col. 4.

With respect to claims 14, 37 and 44, Kuo discloses an error signal (410) and modifying a temperature of the laser diode for adjusting a frequency of the laser signal in an appropriate direction according to said error signal, note col. 2, see figs. 1-4

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With respect to claim 15, Kuo discloses the optical amplifiers (118 and 212), see figs. 1-2.

With respect to claims 16-17, Kuo discloses a wavelength control circuit (130) generated a coarse control signal for laser (112) based on a wavelength tuning algorithm, a wavelength mapping table or other sources of information, note col. 4, see figs. 1-2.

With respect to claim 18, Kuo discloses the optical signal output at amplifier (118), the optical detector (122) provides electrical signal to wavelength control circuit (130), the error signal (410) and the center wavelength (310), note col. 4 line 13 to col. 7 line 59, see figs. 1-4.

With respect to claim 19, figure 3 shows a peaked spectrum having a center wavelength (310).

With respect to claim 21, Kuo discloses the dither signal generator (218), the wavelength control circuit (130) includes a wavelength conversion element (222), an error signal (410), the center wavelengths (310, 312), note col. 4 and 5, see figs. 1-4.

With respect to claim 22, Kuo discloses a modulator (114) is typically biased to provided the required level of performance. A laser bias control circuit for providing a bias voltage to a laser diode for controlling the laser signal and the error signal to the laser bias control circuit for adjusting a center wavelength characteristic of the laser signal, note col. 8.

With respect to claim 25, Kuo discloses the wavelength control circuit (130) includes a conversion element (22), note col. 4, see fig. 2.

With respect to claim 26, Kuo discloses the error signal and varying the error signal in a amount to offset the electromagnetic signal center wavelength in a predetermined manner, note col. 5., see figs. 3-4.

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With respect to claim 27, Kuo discloses typically the wavelength of a laser can be controlled by adjusting the temperature and the drive current of the laser, note col. 2.

With respect to claim 28, Kuo discloses a dither signal generator (218), an optical filter (120) a wavelength control circuit (130) includes conversion element (222), loop filter (216), a summer (220), see figs 1-2.

With respect to claim 29, Kuo discloses an amplifier (118) increases the strength of the optical signal and provides the amplifier signal at a predetermined power level as the output of laser transmitter (100), note col. 3 line 46 to col. col. 8 line 59, see figs. 1-2.

With respect to claims 30, 38 and 40, Kuo discloses a laser (112), a modulator (114) optical filter/detector (120, 122), a control circuit (130) includes AD/DA converters (214, 224), a conversion element (222) and dither signal generator (218), note col. 4 line 12 to col. 9 line 20, see figs. 1-4.

With respect to claims 33-34, Kuo discloses an optical detector (122), note col. 3, see fig. 1.

With respect to claim 35, Kuo discloses a wavelength control circuit (130) includes a summer (220), a loop filter (216) the DAC/ADC converters (214, 224), see fig 2.

With respect to claim 42, Kuo discloses the optical filter/detector to convert optical signal to electrical signal then provide it to wavelength control circuit (130), see fig 1 and 2.

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo et al (6,222,861) in view of Bianchini et al (5,340,980).

With respect to claim 4, Kuo et al discloses all limitations as set forth in claim 1 except for a microwave generator device for generating the microwave signal. Whereas Bianchini et al discloses a microwave generator device (10) for generating the microwave signal, note col. 2, see fig 1. For the advantageous of electromagnetic signal is employed in an information carrying system employing microwaves, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Kuo with the microwave generator device as taught or suggested by Bianchini.

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6. Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo et al (6,222,861) in view of Hung (6,333,941).

With respect to claim 10, Kuo et al discloses all limitations as set forth in the claim 8 except for a surface acoustic wave detector. Whereas Hung discloses the surface acoustic wave device utilized in AOFT (1403), note col. 7, see fig. 4. For the advantageous of tunable optical, transmitter and tunable light source, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Kuo with the surface acoustic wave as taught or suggested by Hung.

7. Claims 31, 39 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo et al (6,222,861).

With respect to claims 31, 39 and 41, Kuo et al discloses predetermined a wavelength and the feedback signal. However Kuo does not disclose the feedback signal is two times a dither modulation frequency. Whereas Kuo et al discloses of uses combination of a "feed-forward" loop to quickly adjust the wavelength of the laser to within a predetermined window around a specified wavelength and a feedback loop to accurately adjust and maintain the wavelength at the specified wavelength. since it has been held that discovering an optimum value of a result effect variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Citation Of The Pertinent References

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclose.

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The patent to Yang et al (US patent 6317247) discloses bias voltage stabilizing method for electricity optical modulator based on off level sampling.

The patent to Cahill et al (US patent 4588296) discloses compact optical GYRO.

Communication Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan M Nguyen whose telephone number is (703) 306-0247.

The examiner can normally be reached on 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 306-5511 for regular communications and (703) 306-5511 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.



Paul Ip
SPE
Art unit 2828

TMN
November 10, 2002